



**UNITED STATES DEPARTMENT OF COMMERCE  
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/375,610	08/17/99	WANG	Y B-1484

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HM12/0129

EXAMINER

PARSA, J

ART UNIT	PAPER NUMBER
1621	

DATE MAILED: 11/29/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.

09/375,610

Applicant(s)

Wang et al

Examiner

J. Parsa

Group Art Unit

1621



☐ Responsive to communication(s) filed on \_\_\_\_\_

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claim

☒ Claim(s) 1-6, 10-13, and 15-24 is/are pending in the applicat

Of the above, claim(s) 1-6 and 15 is/are withdrawn from consideration

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 10-13 and 16-24 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☒ The proposed drawing correction, filed on Aug 17, 1999 is ☒ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☒ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☐ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s) \_\_\_\_\_

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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1. Applicant's election with traverse of a Group II ( Fischer-Tropsch synthesis process) in Paper No. 5 is acknowledged. The traversal is on the ground(s) that the searching of the catalyst claims "would not present an undue burden". This is not found persuasive because as stated in previous office action, the catalyst structure and the process for preparing Fischer-Tropsch products are patentably distinct and classified in a different class and subclass. Additionally, it would constitute an undue burden on the Examiner to search the catalyst structure. Therefore, the restriction as indicated in paper No. 5 is still deemed proper and made Final.
2. Applicant's remarks filed on 11/09/2000 is persuasive. The rejection of claims 10-13, 16 and 17 under 35 U.S.C 103 (a) over Herkowitz is withdrawn.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 16, 18-21 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herskowitz (USP 5,652,193).

Applicants' claimed invention is directed to a Fischer-Tropsch synthesis reaction in the presence of a catalyst structure comprises of a foam, felt wade or combination thereof. Passing a feed stream having a mixture of hydrogen gas with carbon monoxide through the said catalyst

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structure, and heating the catalyst structure to at least 200 °C at an operating pressure. The feed stream has a residence time less than 5 seconds, thereby obtaining a product stream of at least 25% conversion of carbon monoxide and at most 25% selectivity toward methane.

Herskowitz teaches a process for converting hydrogen and carbon monoxide to heavy hydrocarbon in a fixed bed reactor by a catalytic reaction. The method includes contacting the hydrogen and carbon monoxide in the reactor at reaction conditions with a supported catalyst. The support includes an inert or hollow core and an outer layer of porous inorganic refractory oxide. The outer layer has a thickness determined so as to optimize CO conversion to heavy hydrocarbons so that conversion to methane is maintained at a predetermined level. The thickness is determined by relating the rate of diffusion of the CO and hydrogen to a rate of reaction in the porous inorganic oxide for a predetermined support geometry, partial pressure and temperature. A metal catalyst ( e.g. cobalt or ruthenium) on a support (e.g. titania or silica) promoted by different metals (rhenium, hafnium and others) are used for synthesis of hydrocarbon from mixture of carbon monoxide and hydrogen (see col. 1, line 65 through col. 2, line 18 and Table 2 for the methane selectivity and CO conversion). The independent claim 16 does not require that the catalyst structure have an inter facial layer and buffer layer disposed between the porous structure. Furthermore, it is well-known in the catalyst art to make a catalyst structure from foam, felt, wad or combination thereof. The catalyst structure of the cited reference also has a porous structure that diffuses carbon monoxide and hydrogen for the catalytic reaction of hydrocarbon synthesis

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The difference between the instant invention and the Herskowitz reference is that the reference does not disclose the residence time and a pore size of the catalyst structure (support) including the pore size of the outer layer of porous inorganic refractory oxide. However, the Herskowitz reference teaches that the methane selectivity depends on the depth in the pellet of the catalyst structure. By decreasing the depth of the outer layer, the CO conversion to methane is significantly decreases in the hydrocarbon synthesis process (see col. 2, lines 28-35). Since the reaction conditions for the Fischer-Tropsch synthesis reaction taught by Herskowitz (T, P and molar ratio of hydrogen to carbon monoxide ) fall within the range of the instant claimed invention one would expect to obtain a similar residence time compared to the applicants' claimed invention. Therefore, it is well within the level of one having ordinary skill in the art to find the optimum pore size of the catalyst through a routine experimentation to minimize the selectivity of CO conversion to methane.

### ***Double Patenting***

5. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

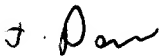
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6. Claims 10-13, 16-24 provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 9-15 of copending Application No. 09/492,245. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

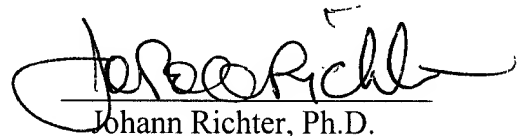
7. Claim 17 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Any inquiry concerning this communication from the examiner should be directed to J. Parsa, whose telephone number is (703)308-4615. The Examiner's normal work hours are Monday-Friday from 8:00 a.m. to 4:30 p.m. If Examiner is not in, please leave a message. Your call will be return as soon as possible. Any general inquiry of a general relating to the status of this application should be directed to the Group 1600 receptionist whose telephone number is (703)308-1235. The Examiner's supervisor, Johann Richter, may be reached at (703)308-4532. Communications may now be transmitted via FAX directly to group 1600. The group 1600 FAX machine number is (703)308-4556.

J. Parsa



January 27, 2001



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